

Manual for use of the rocket engine activated parachute rescue system **Magnum 140**



1. **Destination: Magnum 140** softpack is a rescue parachute system activated by a rocket for super light aircrafts of all categories till maximum take-off weight of 145 kg not exceeding the flight speed of 140 km/h.
The use of the rocket engine activated rescue system guarantees a very quick opening of the rescue parachute.

Used abbreviations: SAD: sport aircraft device
RS: rescue system

2. **Technical characteristics of Magnum 140**
 - Dimensions: l x w x h - 240 x 320 x 100 mm
 - Total load mass : 3,50kg
 - Parachute area: 35,75 m²
 - Parachute lines number: 20
 - Maximum usable tested speed: 140 km/h
 - Average speed of descend with a load of 145 kg: 5,5 m/s
 - Parachute opening speed by standard conditions: 4 s
 - Filling force by the opening: 0,725 kN
 - Revision interval at the producer: 5 years
 - Total service life of the rescue system: 15 years

3. Specification of the rescue system Magnum 140

- Container of the rescue system Magnum 140 is made of the material Cordura. In the container is placed as the parachute, folded in just another container from a special friction resistant material, and as well is in another container section mounted the aluminium case with the rocket engine. The rocket engine is provided by a special propellant activated by two percussion caps activated by two primers. The system is started-up with help of an activation handle on the end of a Bowden cable leading to the rocket engine. The rescue system is protected against unintended or wrongful starting by a transport lock placed on the activation handle. To the lock is added as well the securing Quick pin serving for securing of the rescue system during the manipulation close before the start and after the landing.

4. Installation of the rescue system Magnum 140 to a sport aircraft device

Warning! - Any installation whatsoever of the rescue system Magnum 140 on a SAD is liable to agreement of the producer. It is necessary to illustrate the installation by the owner or producer of the SAD with a simple design or photo documentation.

The installing documentation sent to the producer in two exemplars must contain:

1. A schema of the rescue system location
2. A chart, drawing, photo documentation showing the installation of the launching handle, the launching Bowden line, the direction of the parachute shooting, in case of a overlap installation its dimensions incl. of the hole dimensions and construction of this realisation.
3. The rescue system installation is possible to consult with the producer.

It is necessary for validity of the guarantee to have the installation documentation confirmed by the producer!

For the installation of the rescue system must not be used other parts, than these supplied or authorized by the producer.

Important warning to the rescue system assembly:

- the launching Bowden line must lead in the shortest way
- the diameter of the launching Bowden line bend must not be lesser than 150 mm
- it is necessary to fasten the launching handle to a such place, that is ergonomically and from the safety view the most expedient. - **Caution!!! - The launching handle has to be mounted on the harness side opposite to the direction of the rescue system shot. The rescue system will than be activated by this hand, that is not endangered by the shot!!!!**
- the fastening of the launching handle must be as strong as not to be loosened by work of the strength of minimum 60 kg.
- the Bowden line should be fastened at least every 40 cm to the SAD, or to the harness.
- **the suspension cable - parachute fastening to the SAD is secured by the connecting cable in the shape of "V" between the parachute (its lines) and the aircraft. From the container are slightly drawn out its two slings, that both must be fastened to the SAD!!!!**

The space, where the rescue parachute should be pulled out, must be free, or for this purpose properly trimmed. If this space should be before the rescue system in the direction of the shot covered, than the construction of this separable overlap must be necessarily consulted with the producer!!!

- the hole, where the rescue parachute is going through, must be smooth and should have no sharp edges!!!

5. **Guarantee of the producer**

Stratos 07 Ltd. guarantees proper function of the rescue system Magnum 140 for the term of 5 years from the date of its production. The guarantee is valid only under the condition, that the user fulfills all conditions of the producer.

The rescue system is designed and constructed thus as not to need any special maintenance. Its faultless function is possible only under the conditions that there did not occur any damages of it or any interference in its construction. If the user discovers any damage, it is necessary to inform of it the producer!!! As to the art of the damage the producer will consider, if the rescue system is still able to function, or if it needs repair.

Any interferences in the rescue system are forbidden and the consequence is loss of the guarantee!!!

To do interferences in the rescue system is authorized only the producer !!!

Magnum 140 is determined for rescue of the sport aircraft device crew and it is possible to use it only in emergency situations.

The producer offers the guarantee on the condition, that the rescue system is treated according to the producer's manual and is used in aircraft sports on a sport aircraft device.

Regulations of rescue system use given in this manual specify the guarantee conditions. The producer cannot offer any claim for damages incurred by using of the rescue system during a forced landing. The operator is obliged to realize the flight of a sport aircraft device so, as to land at any time safely.

6. **Conditions for using of Magnum 140**

Instruction of handling pyrotechnic objects according to valid regulations in every

land of their using is obligatory!

The rescue system is determined for following situations:

- An accident during the fly, with a mutual collision of two sport aircraft devices.
- An accident owing to damage of the aircraft device.
- The loss of manageability of the sport aircraft device.
- An engine defect over such a terrain, where it is not possible to land safely.
- Health problems of the pilot, when he is not able to continue the flight and safely land.
- In case you make the decision to use the rescue system, it is necessary to do it immediately, without any delay, in order not to lose precious time and altitude.

In case of fire on the sport aircraft device deck do not use the rescue system, but try to land safely in the shortest time!!!

The above mentioned examples are these of the most important. The decision when to use the rescue system Magnum 140 is always on the pilot, who has to evaluate rightly the existing specific situation!!!

7. Arrangements before the flight

1. To take away the transport lock and put in the securing Quick pin.
Important warning: you have to put in the Quick pin instead of the lock at the parachute gliders for that time before the start when you pull it out after the start and the activity handle is still secured by the fabric cover. So we avoid unintended activation by unintended grasp of the activity handle by the lines, what could cause the activation of the rescue system. The Quick pin must be returned inside without delay after the landing. At sport aircraft devices where this situation does not threaten, you have to put out the Quick pin just before the start and than again after the landing you have to safe by it the activity handle.
2. To control the suspension cables whether they are properly fastened as well to the rescue system, as to the sport aircraft device.
3. Control of connecting snap hooks and carabiners, whether they are thoroughly tightened.
4. Control of the rescue system container, including the rocket case, whether there is not any damage.
5. Control of the rescue system fastening, whether there is no loosening.
6. Control of the activity handle whether it has not been damaged, as well as whether the activity Bowden has not been damaged.
7. In the direction of the parachute pull-out by the rocket engine must not be any obstacle.

8. How to activate the rescue system Magnum 140

1. Pull strongly the activity handle - it is possible by the version of parachute gliders to realise this activation by one move, when you together loosen the fabric cover and pull the handle.
2. Switch off the engine by aircraft devices driven by an engine.
3. By sport aircraft devices with the landing gear you have to fasten the safety belts.
4. During the drop of the sport aircraft device without the chassis it is necessary to drop in such a position, that the first impact will strike the feet.
5. By sport aircraft device driven by an engine it is necessary at first after the drop, if it is possible, leave in an adequate distance the SAD, if there should start a fire.

Warning:

- The rescue system is necessary to install in such a way as to avoid a collision with the propeller of the SAD! To this you have to pay attention especially by SAD with engines and propellers in a pressing arrangement!
- By installation of the rescue system for SAD it is recommended to install an automatic ignition switch to the activity handle.
- The activity handle must be pulled so long till we do meet such an opposition, that stops its move!
- From the pull of the activity handle to the opening of the parachute will pass 3 - 4 seconds!
- After the first parachute filling decreases the speed nearly to zero!
- It is necessary to prepare the crew for the parachute opening and a following bump by strengthening of the whole body!
- Real speed of descending will depend of the real flying mass of the SAD!
- By the maximum loading, i.e. 145 kg, descends Magnum 140 in the standard high 7m/s. The SAD resistance reduces the descent.

9. **Maintenance of Magnum 140**

The service life of Magnum 140 is 15 years by the 5-years revision cycle. During this time it fulfils all technical parameters, that are given in the Magnum 140 manual. After its use, its activation, or after expiring of the guarantee interval of 5 years must be the rescue system sent back to the producer for revision and to get it back into a functional state!!!! After passing of 15 years after the exchange of the parachute canopy and worn parts may the rescue system come once more into service, when the 15-years time of its usability will run again.

These revisions and repacking may do only the producer !!!!!

After realisation of the 5-years revision gets the RS always a new production label, where is stated its service life date, till that it must be sent back to the producer for repackig and a total revision!!!! These data are as well mentioned in the certificate of the rescue system, which its owner sends to the producer together with the rescue system for revision! The producer puts down in it the revisions.

At any damage of the rescue system it is necessary to inform immediately the producer, who gives instructions how to handle further the RS, on order to avoid an undesirable activation!!!

The producer must be informed of every activation of the rescue system!!!!

10. **Important warning**

The rescue system must be always after the flight finish safed at first by the securing Quick pin, or straight away by the transport lock. During the transport always by the transport lock!!!

The rescue system may not be transported by air! In the event that it would be necessary to use air transport must be a rockete engine loaded into a special container provided by the manufacturer, intended to transport dangerous material!!!

11. **Conclusion**

- Any activation - use of the rescue system must be without delay given to the producer!
- If it is possible, describe exactly the situation and give the reason of the use of the rescue system!
- Stratos 07 Ltd. thanks you in advance for the given information and will bring the used rescue system into service in a possibly shortest term.

We wish you a pleasant experience during a lot of flight hours without the necessity to use the rescue system.

12. **Delivery contents**

- Rescue system Magnum 140, incl. of the securing transport lock and a securing Quick pin
- Directions for use with an accompanying certificate
- Any other materials according to the requirement of the customer:

**Producer: Stratos 07 Ltd.
Na Folimance 13
120 00 Praha 2
Czech Republic**

tel: +420603416872, +420603451819, +420312658151

www.stratos07.cz info@stratos07.cz

Photos from a test by speed 40km/h



The Picture from tests with 145 kg load and 140km/h





The rescue system must be during the time, when you do not fly with it, secured by the key delivered by the producer. This together fulfills the function of the transport safety catch.



Before the flight you have to take the key out and to give on its place the safety "Quick pin".



After the start you must push out in the shortest time the safety "Quick pin"!



In case of necessity to use the rescue system put your arm under the protective flap of the activity handle, catch hold of it and push strongly. You activate by it the rocket engine, which will pull out from the container the rescue parachute, that will develop very quickly. We recommend to strengthen the body, to hold the hands tight at the body and before the fall on the earth prepare the whole body for the bump. At parachute gliders it is necessary to pull down during the descent the canopy of the main parachute.

Caution! By regular operation secure immediately after the landing the rescue system by the safety Quick pin! During the transport, or in the time, when you will not fly, secure the rescue system by the key!

Remember, that you handle with a pyrotechnic equipment, that could endanger life of you and your surroundings in case of improper use or unprofessional manipulation.

For the security during the use of the rescue system is responsible the owner, who uses it in accordance with the producers manual and observing regulations, applying to this equipment, valid in the land where he occurs with it.

Important warning to the installation of the rescue ballistic system Magnum 140!



By the installation of the ballistic rescue system take care that the rocket engine pulls out the parachute to the side of the hand by which you will activate the rescue system. Raising the hand to the activating handle of the rescue system you will free the area before the rocket engine and prevent a possible injury, that it could cause to you. The most suitable place for the rescue system is by the motor paragliding under the seat. Any installation must be consulted with the producer!

Caution!

The rescue system Magnum 140 is necessary to attach to the sport aircraft device by both ends of the suspension cable to the space given for this purpose by the producer of the harness, not of the sport aircraft device!

GUARANTEE CARD

The product was made according to the valid construction documents of a registered pattern. The producer grants the guarantee on a correct and flawless product function for 5 years and the producer may extend the guarantee term for another 5 years (see the chapter Guarantee and consumption time).

By this guarantee are not covered:

- Flaws caused by improper use.
- Flaws arising from unprofessional manipulation, or adaptations of the product.
- If it came to rough handling and manipulation unconsonant with the product construction.
- If the damage was caused by the transportation.
- If bad storage was guilty of the damage.

When claiming the guarantee repair it is necessary to present the guarantee card with the date of purchase and confirmed by a signature and the dealers stamp. The time of the guarantee extends for the time when the product was in the guarantee repair.

The guarantee data are as well on the label stuck on the container.

The user firmly declares, that he is informed with the use conditions of the rescue system mentioned in the product manual and that he will inform every person, who will come into contact with the rescue system, of its use conditions. The responsibility of any use overpasses to the user.

Users Signature: _____

Producer:
STRATOS 07 s.r.o.
Na Folimance 13
120 00 Praha 2
www.stratos07.cz

Shop:
STRATOS 07 s.r.o.
Žilinská 07
273 01 Kamenné Žehrovice

Type: **MAGNUM**

Serial number:

Date of issue:

Signature + stamp

Date of next revision I

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Date of next revision II

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Date of next revision III

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Confirmation
of the revision I

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Confirmation
of the revision II

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Confirmation
of the revision III

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